MULTIPLE-MODE MEMORY AND METHOD FOR FORMING SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application serial no. 10/184,578, filed June 27, 2002, which is hereby incorporated by reference.

5   ## BACKGROUND

This invention relates to solid-state integrated circuit memories, and in particular to improved solid-state integrated circuit memories that provide multiple models of operation.

Modern computing systems often include both read-only memory for 10   boot up or archiving purposes and re-writable memory such as DRAM, flash, and magnetic disks. Typically, read-only memories are built and packaged separately from re-writable memories, and this increases system cost and complicates system assembly.

SUMMARY

15   By way of general introduction, the preferred embodiments described below relate to a multiple mode memory that includes both field-programmable write-once memory cells and field-programmable re-writable memory cells carried by the same integrated circuit substrate and addressed by the same I/O circuitry. In one non-limiting example, the multiple-mode 20   memory is a three-dimensional memory having multiple, vertically-stacked layers of memory cells. Some of these layers include the write-once memory cells and others of the layers include the re-writable memory cells. In this way, both types of memory are provided on a single integrated circuit substrate. This reduces manufacturing cost and simplifies assembly of a 25   computer system employing both types of memory cells. Additional types and numbers of types of memory cells can be used.

The foregoing sections have been provided by way of general introduction, and they are not intended to narrow the scope of the following claims.